

CLAIMS

What is claimed is:

1. In a wireless communication system, a method of reusing common physical channel (CPCH) timeslots to transmit dedicated physical channel (DPCH) signals, the method comprising:

- (a) tagging each CPCH timeslot as being aggressive or non-aggressive;
- (b) limiting the power level for transmitting DPCH signals over the CPCH timeslots to a maximum power level;
- (c) if the number of CPCH timeslots is not greater than one, tagging the CPCH timeslots as being non-aggressive; and
- (d) if the number of CPCH timeslots is greater than one, tagging for each cell the CPCH timeslots to be reused to transmit DPCH signals as being aggressive, and tagging all others of the CPCH timeslots as being non-aggressive.

2. The method of claim 1 further comprising:

- (e) increasing by a predetermined amount the power of a DPCH signal transmitted for each CPCH timeslot that is tagged as being non-aggressive and the power is below a predetermined maximum power level;
- (f) monitoring the metrics associated with the quality of the CPCH timeslot; and
- (g) for each angular section of each cell associated with a degradation of CPCH quality:
- (h) determining the respective neighboring cells,
 - (ii) reducing the maximum power level for the CPCH timeslots in the neighboring cells associated with the degradation of CPCH quality, and

- (iii) tagging the neighboring cells as being aggressive for the CPCH timeslots associated with the degradation of CPCH quality.

3. The method of claim 2 further comprising:

- (i) assigning a predetermined number of downlink timeslots;
- (j) assigning a predetermined number of uplink timeslots; and
- (k) assigning a predetermined number of CPCH timeslots.

4. The method of claim 3 wherein the number of CPCH timeslots is between one and the number of downlink timeslots.

5. The method of claim 1 wherein the communication system is a time-division duplex (TDD) system and the cells are TDD cells.

6. In a wireless communication system, a method of reusing the common physical channel (CPCH) timeslots to transmit dedicated physical channel (DPCH) signals at a power level that does not exceed a maximum power level, the system including (i) a plurality of cells, each cell having a plurality of angular sections; (ii) a plurality of wireless transmit/receive units (WTRUs); (iii) a radio access network (RAN) for collecting metrics associated with the quality of the CPCH timeslots and received power measured by said WTRUs; (iv) a plurality of base stations which transmit CPCH signals over a plurality of timeslots, said base stations having adaptive antennas operating in respective ones of said cells, each base station being in communication with respective ones of said WTRUs; and (v) a database which associates the cells with the adaptive antennas of the base stations, the method comprising:

- (a) the RAN determining that the communication system has a stable distribution of CPCH metrics for each angular section of each cell;

- (b) tagging, in the database, each CPCH timeslot as being aggressive or non-aggressive;
- (c) increasing by a predetermined amount the power of a DPCH signal transmitted by the base station in each CPCH timeslot that is tagged as being non-aggressive and the power is below a predetermined maximum power level;
- (d) monitoring the metrics associated with the quality of the CPCH timeslot; and
- (e) for each angular section of each cell associated with a degradation of CPCH quality:
 - (i) determining the respective neighboring cells,
 - (ii) reducing the maximum power level for the CPCH timeslots in the neighboring cells associated with the degradation of CPCH quality, and
 - (iii) tagging, in the database, the neighboring cells as being aggressive for the CPCH timeslots associated with the degradation of CPCH quality.

7. The method of claim 6 further comprising:

- (f) assigning a predetermined number of downlink timeslots;
- (g) assigning a predetermined number of uplink timeslots; and
- (h) assigning a predetermined number of CPCH timeslots.

8. The method of claim 7 wherein the number of CPCH timeslots is between one and the number of downlink timeslots.

9. The method of claim 6 further comprising repeating steps (c) – (e) until all of the CPCH slots are tagged in the database as being aggressive or are designated to transmit DPCH signals at the maximum power level.

10. The method of claim 6 wherein the communication system is a time-division duplex (TDD) system and the cells are TDD cells.

11. A wireless communication system which reserves common physical channel (CPCH) timeslots, the system comprising:

- a plurality of wireless transmit/receive units (WTRUs);
- a radio access network (RAN) for collecting metrics associated with the quality of the CPCH timeslots and received power measured by the WTRUs; and
- a database in which each CPCH timeslot is tagged as being aggressive or non-aggressive.

12. The system of claim 11 further comprising:

- a plurality of cells, each cell having a plurality of angular sections;
- a plurality of base stations which transmit CPCH signals over a plurality of timeslots, said base stations having adaptive antennas operating in respective ones of said cells, each base station being in communication with respective ones of said WTRUs;

- a processor in communication with the RAN, the database, the base stations and the WTRUs; and

- a process running on the processor for monitoring the metrics associated with the quality of the CPCH timeslot, wherein for each angular section of each cell associated with a degradation of CPCH quality:

- (i) the respective neighboring cells are determined,
- (ii) the maximum power level for the CPCH timeslots in the neighboring cells associated with the degradation of CPCH quality is reduced, and
- (iii) in the database, the CPCH timeslots in the neighboring cells associated with the degradation of CPCH quality are tagged as being aggressive.

13. The system of claim 11 wherein the CPCH timeslots are reserved to transmit broadcast channel (BCH) signals.

14. The system of claim 11 wherein the CPCH timeslots are reused to transmit dedicated physical channel (DPCH) signals at a power level that does not exceed a maximum power level

15. A wireless communication system for reusing common physical channel (CPCH) timeslots to transmit dedicated physical channel (DPCH) signals, the system comprising:

(a) means for tagging each CPCH timeslot as being aggressive or non-aggressive;

(b) means for limiting the power level for transmitting DPCH signals over the CPCH timeslots to a maximum power level;

(c) means for tagging the CPCH timeslots as being non-aggressive if the number of CPCH timeslots is not greater than one; and

(d) means for tagging for each cell the CPCH timeslots to be reused to transmit DPCH signals as being aggressive if the number of CPCH timeslots is greater than one, and tagging all others of the CPCH timeslots as being non-aggressive.

16. The system of claim 15 further comprising:

(e) means for increasing by a predetermined amount the power of a DPCH signal transmitted for each CPCH timeslot that is tagged as being non-aggressive and the power is below a predetermined maximum power level;

(f) means for monitoring the metrics associated with the quality of the CPCH timeslot;

(g) means for determining the respective neighboring cells for each angular section of each cell associated with a degradation of CPCH quality; and

(h) means for reducing the maximum power level for the CPCH timeslots in the neighboring cells associated with the degradation of CPCH quality; and

(i) means for tagging the CPCH timeslots in the neighboring cells associated with the degradation of CPCH quality as being aggressive.

17. The system of claim 15 wherein the system is a time-division duplex (TDD) system and the cells are TDD cells.